

# Curriculum Vitae

Prashanth Jaikumar

*Faculty member, Theoretical Physics Group*

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## Personal data

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Date of birth: *December 23<sup>rd</sup> 1974*

Permanent address: *2B, no.3, 6th cross street, CIT colony*  
(India) *Mylapore, Chennai 600004*

Citizenship: *India*

## Education

*August 1992 to August 2002*

Ph.D. in Physics (2002)  
Stony Brook University, New York, USA *August 1997 to August 2002*

Master of Science in Physics (1997)  
Indian Institute of Technology, Delhi, India *August 1995 to July 1997*

Bachelor of Science with Honors in Physics (1995)  
St. Stephens College, Delhi University, Delhi, India *August 1992 to July 1995*

## Employment

*August 2002 to present*

Visiting Scholar, Argonne National Laboratory *May 2008 to December 2008*

Fellow **E**, Institute of Mathematical Sciences *July 2007 to present*

Post-doctoral associate, Ohio University *September 2006 to June 2007*

Post-doctoral appointee, Argonne National Laboratory *September 2004 to August 2006*

Post-doctoral researcher, McGill University *September 2002 to August 2004*

## Teaching and Course Development

*August 1997 to April 2003*

Quantum Physics for Engineers *Spring 2003*

Special topics course: Solitons and Instantons *Fall 2002*

Advanced Electronics Laboratory (Junior Undergraduates) *Fall 1998*

## References

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**Professor M.V.N. Murthy**  
*Institute of Mathematical Sciences  
CIT Campus  
Taramani, Chennai 600004  
India*

*Email: murthy@imsc.res.in*

*Ph: +91(044)2254-3326*

**Professor Charles Gale**  
*Chair, Physics Department  
McGill University  
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Montreal, Quebec H3A 2T8 Canada*

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**Professor Madappa Prakash**  
*Department of Physics & Astronomy  
Ohio University  
Athens, Ohio 45701 USA*

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**Professor Thomas Schäfer**  
*Department of Physics  
North Carolina State University  
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**Professor Craig D. Roberts**  
*Chief, Physics Division  
Argonne National Laboratory  
Argonne, Illinois 60439 USA*

*Email: cdroberts@anl.gov*

*Ph: +1(630)252-4095*

**Professor Ismail Zahed**  
*Department of Physics & Astronomy  
Stony Brook University  
Stony Brook, New York 11794 USA*

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*Ph: +1(631)632-8129*

**Professor Sanjay Reddy**  
*Theoretical division T-16  
Los Alamos National Laboratory  
Los Alamos, New Mexico 87545 USA*

*Email: reddy@lanl.gov*

*Ph: +1(505)665-0455*

## Invited Talks

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**1. Neutron stars: Astrophysical laboratories for nuclear and sub-nuclear physics**

*Argonne National Laboratory, Illinois, USA (June 2008)*

**1.  $r$ -modes in color superconducting matter**

*Toshali Sands, Bhubaneswar, India (February 2008)*

**2. High-density matter and neutron stars**

*Physical Research Laboratory, Ahmedabad, India (October 2007)*

**3.  $r$ -process nucleosynthesis from decompression of neutron star matter**

*North Carolina State University, North Carolina, USA (February 2007)*

**4.  $r$ -process in a low-entropy environment**

*JINA collaboration meeting, Michigan State University, USA (February 2007)*

**5. The Quark-Nova Scenario and  $r$ -process nucleosynthesis**

*CASCA Bicentennial meeting, Calgary, Canada (June 2006)*

**6. Nucleosynthesis in a low-entropy environment**

*Washington University at St. Louis, Missouri, USA (May 2006)*

**7. Nucleosynthesis: From quarks to stars**

*Institute of Mathematical Sciences, Chennai, India (January 2006)*

**8. Microphysics of QCD and Quark stars**

*Tata Institute of Fundamental research, Mumbai, India (January 2006)*

**9. On Quark star structure and observational signals**

*Workshop on High-Energy Physics Phenomenology, Institute of Physics (IOP), Bhubaneswar, Orissa, India (January 2006)*

**10. The Quark Nova as a site for the  $r$ -process**

*Canadian Institute for Theoretical Astrophysics (CITA), Toronto, Canada (November 2005).*

**11. Mass-radius relations for solitonic stars**

*McGill University, Montreal, Canada (July 2005).*

**12. Strange stars have strange surfaces**

*Los Alamos National Laboratory, Los Alamos, New Mexico, USA (June 2005).*

**13. The nuclear astrophysics of dense quark matter**

*Ohio University, Athens, Ohio, USA (April 2005).*

**14. Quarks in Neutron stars : A new paradigm in astrophysics**

*Colloquium, University of Calgary, Calgary, Canada (March 2005).*

**15.  $r$ -process nucleosynthesis in compact stars**

*McGill University, Montreal, Canada (February 2005).*

**16. The many phases of dense quark matter**

*Colloquium, Tata Institute of Fundamental Research, Mumbai, India (August 2004).*

- 17. Color superconductivity in Neutron stars**  
*Institute of Mathematical Sciences, Chennai, India (July 2004).*
- 18. Surface photon emission from quark stars**  
*Institute for Nuclear Theory, Seattle, Washington, USA (April 2004).*
- 19. Color superconductivity in dense quark matter**  
*Argonne National Laboratory, Argonne, Illinois (February 2004).*
- 20. Photon and neutrino emission rates for bare quark stars**  
*Ohio State University, Columbus, Ohio, USA (August 2003).*
- 21. BCS versus Overhauser pairing in dense QCD**  
*Brookhaven National Laboratory, Upton, New York, USA (January 2002).*

## Conference Presentations

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| <b>Astrophysics of quark matter; Toshali Sands, Orissa</b><br><i>International meeting on quarks in astrophysics</i>                                   | <i>February 14-17, 2008</i>  |
| <b>Quark matter 2008; Jaipur, India</b><br><i>International meeting on heavy-ion physics</i>   | <i>February 4-10, 2008</i>   |
| <b>CASCA Bicentennial meeting; Calgary, Canada</b><br><i>International meeting of the Canadian Astronomical Society</i>                                | <i>June 1-4, 2006</i>        |
| <b>Hot Quarks 2006; Sardinia, Italy</b><br><i>International workshop on ultra-relativistic heavy-ion collisions</i>                                    | <i>May 15-20, 2006</i>       |
| <b>WHEPP-9; Bhubaneswar, Orissa, India</b><br><i>International workshop on high-energy physics phenomenology</i>                                       | <i>January 3-14, 2006</i>    |
| <b>Mid-west Theory Get-Together; Argonne, Illinois, USA</b><br><i>Annual meeting of nuclear physicists from universities in the US mid-west.</i>       | <i>Fall 2004, 2005, 2006</i> |
| <b>Division of Nuclear Physics Meeting (DNP); Chicago, Illinois, USA</b><br><i>Meeting of American Physical Society's Division of Nuclear Physics.</i> | <i>Oct 27-30, 2004</i>       |
| <b>Montreal-Rochester-Syracuse-Toronto Conference (MRST)</b><br><i>Conference on high energy physics from Quarks to Cosmology; Montreal, Canada.</i>   | <i>May 12-14 2004</i>        |
| <b>Quark Matter 2004; Oakland, California, USA</b><br><i>International conference on ultra-relativistic heavy-ion collisions.</i>                      | <i>January 11-17, 2004</i>   |
| <b>Chiral Dynamics of Hadrons and Hadrons in a medium</b><br><i>Workshop on chiral nuclear dynamics, Valencia, Spain.</i>                              | <i>June 26-28, 2003</i>      |
| <b>Topics in Heavy-Ion Collisions; Montreal, Canada</b><br><i>International conference on heavy-ion collisions.</i>                                    | <i>May 26-28, 2003</i>       |
| <b>XIIIth Nuclear Physics Summer School; Bar Harbor, Maine, USA</b><br><i>Lectures on special topics in Nuclear Physics.</i>                           | <i>June 12-22, 2001</i>      |

**Quark Matter 2001; Stony Brook, New York, USA**  
*International conference on ultra-relativistic heavy-ion collisions.*

*January 15-20, 2001*

## **Organizational activities**

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**Local support staff, Quark Matter 2001**  
*Stony Brook University*

*January 15-20, 2001*

**Nuclear Theory Seminar co-ordinator**  
*Center for High-energy physics, McGill University*

*Fall 2003, Spring 2004*

**Theory Seminar co-ordinator**  
*Physics division, Argonne National Laboratory*

*Fall 2005, Spring 2006*

**Local support staff, XVIIIth Mid-west Theory get-together**  
*Physics division, Argonne National Laboratory*

*October 7/8, 2005*

**Local organizer**  
**WHEPP-10**, *workshop on high-energy physics*  
*and phenomenology*

*January 2-13, 2008*

**Organizer**  
**Science Day**, *outreach program in physics for college students in Chennai*

*February 29, 2008*

## **Extended visits for Collaboration**

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**Ohio State University; Ohio, USA**  
*(Host: A. Schwenk)*

*August 9-15, 2003*

**Stony Brook University; New York, USA**  
*(Host: M. Prakash)*

*August 16-23, 2003*

**McMaster University; Ontario, Canada**  
*(Host: R. Bhaduri)*

*July 4-8, 2004*

**University of Calgary; Alberta, Canada**  
*(Host: R. Ouyed)*

*October 15-25, 2004*

**Los Alamos National Laboratory; New Mexico, USA**  
*(Host: S. Reddy)*

*June 4-8, 2005*

**Canadian Institute for Theoretical Astrophysics; Toronto**  
*(Hosts: R. Ouyed & K. Mori)*

*November 12-19, 2006*

**Physical Research Laboratory; Gujarat, India**  
*(Host: H. Mishra)*

*October 28-November 2, 2007*

**Argonne National Laboratory; Chicago, USA**  
*(Host: C. D. Roberts)*

*May-December 2008*

## Awards and Honors

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**Peter B. Kahn fellowship**

May 2001

*Conference travel award for select graduate students.*

**Neeraj Srivastav award**

August 1997

*For excellence in physics and highest GPA in the graduating class (Masters level).*

## Professional societies and responsibilities

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**Member:** *American Physical Society*

2004-present

**Referee:** *Physical Review C, Physical Review D, Physical Review Letters, Astronomy and Astrophysics, International Journal of Modern Physics A*

2004-present

## Overview of publication record

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**28 Regular published articles, 290+ citations**

*Physical Review C (4), Physical Review D (5), Physical Review Letters (2), Physics Letters B (2), International Journal of Modern Physics A (2), Modern Physics Letters A (1), The Astrophysical Journal (3), Astronomy & Astrophysics (2), Journal of High Energy Physics (2), Nuclear Physics B (1), Pramana: Indian Journal of Physics (1), European Physics Journal C (1), Few-Body systems (1).*